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Inventor(s): UCHIDA FUMIHIKO

Applicant(s): HITACHI LTD

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Abstract

PURPOSE:To monitor the film deposition process in the local region on a substrate surface within MOCVD(Metal Organic Chemical Vapor Deposition) or ALE(Atomic Layer Epitaxy) wherein a film is to be deposited at the pressure exceeding 10<-3>Torr using a gas source material.

CONSTITUTION:Within a MOCVD device, a substrate 6 surface is irradiated with the X-rays emitted from a beam source 1 using focussing mirror 3 at an oblique incident angle close to critical total reflection angle. At this time, the X-ray signals transmitted from the substrate 6 surface are detected using an X-ray detector 5. Accordingly, the state of a deposited film on the substrate 6 surface can be monitored by a high lateral resolving power even at the pressure exceeding 10<-3>Torr thereby enabling the pertinent deposition process requirements to be decided meeting the deposition requirements.